Insecta, Lepidoptera, Noctuidae, Catocalinae: New records from the state of Tamil Nadu and whole of India

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ABSTRACT: Adult moths of the Noctuidae subfamily Catocalinae from Tamil Nadu, Western Ghats are reviewed. During this study, eleven species have been newly recorded from Tamil Nadu (Western Ghats) and one species has been recorded from India for the first time.

Members of subfamily Catocalinae (Boisduval, [1828]), are a predominantly tropical subfamily and are often traditionally taken to include the subfamily Ophiderinae. Sir George Hampson (1894-1895) united the Catocalinae and Ophiderinae into one group. Kitching (1984) united Catocalinae (presence of spines on the mid-tibia) and Ophiderinae (absence of spines on the mid-tibia) into one group, Catocalinae. However Speidel et al. (1996) suggested a division of the Catocalinae and Ophiderinae complex into two groups.

The two subfamilies, Catocalinae and the type genus Catocala Schrank, and Ophiderinae and the type genus Othreis Hübner are united into one Catocalinae by the possession of a chitinous projection from the inner margin of the tympanal frame (Holloway, 2005). Together these two subfamilies account for over half of the species of Noctuidae in the world. The subfamily Catocalinae is one of the largest subfamilies of Noctuidae. It is distributed widely in India. At present the subfamily Catocalinae includes 90 genera and 130 species in India. In Sir George Hampson’s exhaustive treatise on the Indian series, moths’ volumes (II & III 1894-1895), he recorded the noctuid moths under ten subfamilies. Lafontaine and Fibiger (2006) divided the Catocalinae into 18 tribes. Five of these, Ophiusini, Catocalini, Euclidiini, Catephenii and Tinolini occur in the study area.

The Catocalinae group contains numerous agricultural pests, which are of considerable economic importance. These include both defoliating larvae and fruit-piercing adults, with the occasional occurrence of both within the same genus or species. The defoliators affect both tree and field crops; some can have impacts on forest plantations. Many of the genera included in the Catocalinae, particularly those in which the moths have relatively robust bodies, have been noted to feed as adults on fruits. Several species have a modified tongue to facilitate piercing mammalian skin and to suck blood. Holloway et al. (2001) observed predominantly fruit feeding characters in the subfamily Catocalinae.

With a view to clarify or expand the known geographic distribution of some Oriental Catocalinae species, especially those occurring in India, we carried out an extensive collection during 2009–2011. Noctuid moths were collected from five different sites situated in four different areas, namely: Coonoor, Ooty, Kothagiri, Doddabedda and Kodaikanal. Moth sampling was conducted at night hours (6.30 – 10.00 P.M.) and morning hours (5.00 – 6.00 A.M.) using mercury vapor lamps.

Figure 1. Map showing collection sites of Nilgiri District.
(200/220w) for five consecutive days every month. Moths that were attracted to the traps were collected using a sweep net (25 cm diameter). The moths collected were killed by Ethyl acetate vapor, properly mounted, and stored in insect storage boxes. The Noctuid moths were identified to the species level based on the keys provided by Hampson (1894). The number of subfamilies, genera, species and total number of individuals collected during the study period were recorded. The voucher specimens were deposited at the Insect Museum, Entomology Research Institute, Loyola College, Chennai, Tamil Nadu, India. Based on our study we report here the following new records for the Western Ghats of Tamil Nadu: Ophiusa olista Swinhoe, 1893, Ophiusa descriminans Walker, 1858, Trigonodes hyppasia, (Cramer, 1779), Dysgonia calefacios Walker, 1858, Dysgonia illibata (Fabricius, 1775), Lygephila maxima Bremer, 1861, Lacera noctilio Fabricius, 1787, Ericeia eriophora (Guenée, 1852), Calyptra minuticornis, (Guenée In Boisdauval and Guenée, 1852), Spirama helicina (Hubner, [1831]), Eucocina sikimensis Butler, 1895, Phyllodes consobrina Westwood, 1848, Anisoneura aluco (Fabricius, 1775) and Lygniodes schoenbergi Pagenstecher, 1890. There was one new record for India: Hyperlopha crucifera Walker, 1865.

Data on the geographical distribution were obtained from Hampson (1894), Holloway (2005) and Park et al. (2001).

**Subfamily Catocalinae**

**Ophiusa olista** Swinhoe, 1893

**Geographical Distribution:** The species was previously recorded from the oriental region including, Korea: North, South, Japan: Honshu, Shikoku, Kyushu, Tsushima Islands, China, Taiwan, and Philippines, Thailand, Vietnam and Nepal. This is a new record from (Western Ghats) Tamil Nadu, India.


**Ophiusa descriminans** Walker, 1858

**Geographical distribution:** Previous distributional accounts are available from Indo- Australian tropics east to Vanuatu and New Caledonia. This is a new record from (Western Ghats) Tamil Nadu, India.


**Trigonodes hyppasia** (Cramer, 1779)

**Geographical Distribution:** The species was previously recorded from Old World tropics and subtropics east to Fiji and Tonga. It is now reported from Nilgiri Biosphere (Western Ghats). This is a new record from Tamil Nadu, India.

**Specimens examined:** India, Tamil Nadu part of Western Ghats: Kodaikanal Hills Station-Moonjikkal [10°23’915” N, 77°49’7716” E, Elevation: 6700 ft./2030 mtrs], 07.X.2011, holotype 2 male [(Two specimens), Voucher specimens: ERI-LEP: 111)].

**Dysgonia calefacios** Walker, 1858

**Geographical Distribution:** The species occurs in North East Himalaya, Thailand, Sundaland and Republic of the Philippines to Seram. This is a new record from (Western Ghats) Tamil Nadu, India.

**Specimens examined:** India, Tamil Nadu part of Western Ghats: Kodaikanal Hills Station-Moonjikkal [10°23’915” N, 77°49’7716” E, Elevation: 6700 ft./2030 mtrs], 07.X.2011, holotype 2 male [(Two specimens), Voucher specimens: ERI-LEP: 43)].

**Figure 2.** Map showing collection site of Kodaikanal, Dindugul District.
4 female [(15 specimens), Voucher specimens: ERI-LEP: 54)]

_Dysgonia illibata_ (Fabricius, 1775)

**Geographical Distribution:** The species occurs in China, India, Sri Lanka and Burma. This is a new record from (Western Ghats) Tamil Nadu, India.


_Ericia eriophora_ (Guénée, 1852)

**Geographical Distribution:** The species is distributed in the Oriental tropics to Republic of the Philippines and Sulawesi. This is a new record from (Western Ghats) Tamil Nadu, India.

**Specimens examined:** India, Tamil Nadu part of Western Ghats: Kodaikanal Hills Station-Kodaikanal Lake [10°23’8.38” N, 77°48’7.68” E, Elevation 6984 ft./2101 mtrs], 27.V.2011 [(Three specimens), Voucher specimens: ERI-LEP: 104)].

_Lygephila maxima_ Bremer, 1861

**Geographical Distribution:** The species was previously recorded from Korea: North, South, Japan, China, Russia: RFE-Primorye, Khabarovsk, Amur, Sakhalin and Kuriles. This is a new record from (Western Ghats) Tamil Nadu, India.

**Specimens examined:** India, Tamil Nadu part of Western Ghats: Kodaikanal Hills Station-Kodaikanal bus terminus [10°23’5.36” N, 77°49’29.33” E, Elevation 6983 ft./2130 mtrs], 15.V.2011, [(Three specimens), Voucher specimens: ERI-LEP: 73)].

_Lacera noctilio_ Fabricius, 1787

**Geographical Distribution:** The species is distributed from the Indo-Australian tropics east to Samoa, New Caledonia and Tonga, also the Marianas and Western Carolines. This is a new record from (Western Ghats) Tamil Nadu, India.


_Lygniodes schoenbergi_ Pagenstcher, 1890

**Geographical Distribution:** The species was described from Borneo Holloway 2005. This is a new record from India.

**Specimens examined:** India, Tamil Nadu part of Western Ghats: Kodaikanal Hills Station-Bryant Park [10°23’0.983” N 77°49’4.483” E, Elevation 6987 ft./2130 mtrs], 27.V.2011 [(Five specimens), Voucher specimens: ERI-LEP: 83)].

_Calyptra minuticornis_ (Guénée In Boisduval and Guénée, 1852)

**Geographical distribution:** This species is recorded for the first time in India. It also occurs in Sri Lanka, Taiwan, Thailand, Peninsular Malaysia, Java, Borneo; New Guinea, Bismarcks, Queensland; Sulawesi and Timor (intermediate).

**Specimens examined:** India, Tamil Nadu part of Western Ghats: Nilgiri Biosphere – Ooty Botanical Garden [11°41’75.8” N, 76°71’04.8” E, Elevation: 7306 ft./2228 mtrs], 25.III.2011, Bench Mark [11°41’18.1” N, 76°72’07” E, Elevation: 7840 ft./2389 mtrs], 26.IV.2011 and Coonoor Municipal building [11°35’45.8” N, 76°79’56” E, Elevation: 5605 ft./1708 mtrs], 17.IV.2010; Senbaganur [10°23’17.3” N, 77°50’3” E, Elevation: 5899 ft./1798 mtrs], 27.IV.2011, [(47 specimens), Voucher specimens: ERI-LEP:61)].

_Sivagunia unbicolor_ (Buquet, 1886)

**Geographical Distribution:** The species was recorded for the first time from India. It also occurs in China, Taiwan, and Republic of the Philippines. This is a new record from India.

**Specimens examined:** India, Tamil Nadu part of Western Ghats: Kodaikanal Hills Station-Bryant Park [10°23’0.983” N 77°49’4.483” E, Elevation 6987 ft./2130 mtrs], 26.IV.2011, [(50 specimens), Voucher specimens: ERI-LEP: 121)].

_Spirama helicina_ (Hubner, [1831])

**Geographical Distribution:** The species is distributed across Asia, Taiwan, Korea and Japan. This is a new record from (Western Ghats) Tamil Nadu, India.

**Specimens examined:** India, Tamil Nadu part of Western Ghats: Nilgiri Biosphere- Ooty Bench mark [11°41’18.1” N, 76°72’07” E, Elevation: 7840 ft./2389 mtrs],
Eudocima sikhimensis Butler, 1895

Geographical Distribution: The species is distributed across Thailand, Sundaland and North Eastern India. This is a new record from Western Ghats Tamil Nadu, India.


Hyperlopha crucifera Walker, 1865

Geographical distribution: The species was first described by Holloway (2005) from Borneo. This is a new record from India.


Phyllodes consobrina Westwood, 1848

Geographical Distribution: This species is recorded for the first time in Nilgiri biosphere of Western Ghats. Previously it was reported from North East India. It also occurs in Burma, Andaman, Sri Lanka, Thailand and Bangladesh.

Specimens examined: India, Tamil Nadu part of Western Ghats: Kodaikanal Hills Station-Kodaikanal Bus terminus [10°23'5367" N, 77°49'2933"E, Elevation 6983 ft. /2130 mtrs], 07.X.2010, 2 male; Moonjikkal [10°23'915" N, 77°49'7716" E, Elevation: 6700 ft. /2030 mtrs], 15.IV.2010; Bryant Park [10°23'0983" N 77°48'0283" E, Elevation 6987ft./2130 mtrs], 28.VI.2011, Holotype male [(Two specimens, Voucher specimens: ERI-LEP: 115)].

Anisoneura aluco (Fabricius, 1775)

Geographical Distribution: The species is distributed from Himalaya, Taiwan, Burma, Thailand (VK), Peninsular Malaysia, Sumatra, Borneo and Buru. This is a new record from (Western Ghats) Tamil Nadu, India.


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LITERATURE CITED

FIGURE 3. A) Hyperlopha crucifera Walker 1865; B) Calyptra minuticornis (Guénée In Boisduval and Guenée, 1852); C) Anisoneura aluco (Fabricius, 1775); Phyllodes consobrina Westwood, 1848.

Phyllodes consobrina Westwood, 1848

Geographical Distribution: This species is recorded for the first time in Nilgiri biosphere of Western Ghats. Previously it was reported from North East India. It also occurs in Burma, Andaman, Sri Lanka, Thailand and Bangladesh.


Anisoneura aluco (Fabricius, 1775)

Geographical Distribution: The species is distributed from Himalaya, Taiwan, Burma, Thailand (VK), Peninsular Malaysia, Sumatra, Borneo and Buru. This is a new record from (Western Ghats) Tamil Nadu, India.